

Claims

- [c1] An apparatus for cutting food product, the apparatus comprising:
- means for making a substantially horizontal cut through a food product being delivered thereto in a substantially vertical direction;
 - at least one feed member above the cutting means, the feed member comprising an internal passage that defines an opening in proximity to the cutting means for delivering the food product to the cutting means in a substantially vertical direction, the internal passage being defined by diametrically-opposed first and second walls of the feed member, each of the first and second walls having a radius of curvature transverse to the internal passage, the radius of curvature of the first wall having a center that is offset from a center of the radius of curvature of the second wall so that the internal passage has a cross-sectional shape defined by two offset, overlapping diameters; and
 - means for applying a force to the food product traveling downward through the internal passage so as to push the food product against the first wall of the feed member as the cutting means is making a substantially hori-

zontal cut through the food product.

- [c2] An apparatus according to claim 1, wherein the feed member has a lower portion adjacent the opening and an upper portion above the lower portion, the lower portion having a lower extremity that defines the opening of the internal passage, the first wall within the lower portion having a flared region with a radius of curvature transverse to the internal passage that increases in a direction toward the opening so that a portion of the opening is defined by the flared region and has a larger radius of curvature than the second wall within the lower portion of the feed member.
- [c3] An apparatus according to claim 2, wherein the force applying means urges the food product toward the flared region of the lower portion as the cutting means is making a substantially horizontal cut through the food product.
- [c4] An apparatus according to claim 2, wherein the flared region of the lower portion is continuous on the first wall within the lower portion of the feed member.
- [c5] An apparatus according to claim 2, wherein the flared region of the lower portion is limited to the first wall within the lower portion of the feed member.

- [c6] An apparatus according to claim 1, wherein the force applying means comprises at least two fluid jets flowing across the internal passage from the second wall toward the first wall so as to impact the food product as the food product travels downward through the internal passage.
- [c7] An apparatus according to claim 6, wherein the at least two fluid jets converge toward the first wall of the internal passage.
- [c8] An apparatus according to claim 7, wherein the cutting means comprises blades that pass beneath the opening in a direction toward an exit point of the first wall within the lower portion, and the fluid jets intersect at the first wall directly above the exit point.
- [c9] An apparatus according to claim 6, wherein each of at least two jets are directed downward toward the cutting means at an angle of less than forty-five degrees from the second wall of the feed member.
- [c10] An apparatus according to claim 6, further comprising:
 - a lower housing member in which the cutting means is contained;
 - an upper housing member to which the feed member is mounted, the platform being above the cutting means

and having first and second positions relative to the cutting means, the upper housing member being engaged with the lower housing member and applying a clamping load to the cutting means so as to secure the cutting means within the lower housing member when the upper housing member is in the first position thereof, the upper housing member being disengaged from the lower housing member and releasing the clamping load on the cutting means when the upper housing member is in the second position thereof;

means for permitting rotation of the cutting means while under the clamping load applied by the upper housing member; and

means for moving the upper housing member toward and away from the lower housing member so as to apply and release the clamping load to the cutting means.

- [c11] An apparatus according to claim 10, further comprising complementary first and second connectors mounted to the apparatus, the first and second connectors delivering electric current to the cutting means when connected to each other and interrupting electric current to the cutting means when disconnected from each other, the first connector being mounted on the moving means and being connectable with the second connector only when the upper housing member is in the first position thereof

wherein the upper housing member is engaged with the lower housing member and applies the clamping load to the cutting means so as to secure the cutting means within the lower housing member.

- [c12] An apparatus according to claim 11, wherein the moving means comprises a crank assembly and the first connector is mounted to the crank assembly.
- [c13] An apparatus according to claim 12, wherein the moving means further comprises a screw coupled to the crank assembly, the screw being operable to vertically raise and lower the upper housing member between the first and second positions thereof when the crank assembly is rotated.
- [c14] An apparatus for cutting food product, the apparatus comprising:
means for making a substantially horizontal cut through a food product being delivered thereto in a substantially vertical direction;
at least one feed member above the cutting means, the feed member comprising an internal passage that defines an opening in proximity to the cutting means for delivering the food product to the cutting means in a substantially vertical direction, the internal passage being defined by diametrically-opposed first and second

walls of the feed member;

means for applying a force to the food product traveling downward through the internal passage so as to push the food product against the first wall of the feed member as the cutting means is making a substantially horizontal cut through the food product;

a lower housing member in which the cutting means is contained;

an upper housing member above the cutting means and having first and second positions relative to the cutting means, the upper housing member applying a clamping load to the cutting means so as to secure the cutting means within the lower housing member when the upper housing member is in the first position thereof, the upper housing member releasing the clamping load on the cutting means when the upper housing member is in the second position thereof;

means for permitting rotation of the cutting means while under the clamping load applied by the upper housing member in the first position thereof; and

means for preventing electrical current flow to the cutting means when the upper housing is not in the first position thereof.

[c15] An apparatus according to claim 14, further comprising means for moving the upper housing member toward

and away from the lower housing member so as to apply and release the clamping load to the cutting means.

[c16] An apparatus according to claim 15, wherein the preventing means comprises complementary first and second connectors mounted to the apparatus, the first and second connectors delivering electric current flow to the cutting means when connected to each other and interrupting electric current to the cutting means when disconnected from each other, the first connector being mounted on the moving means and being connectable with the second connector only when the upper housing member is in the first position thereof wherein the upper housing member applies the clamping load to the cutting means so as to secure the cutting means within the lower housing member.

[c17] An apparatus according to claim 16, wherein the moving means comprises a crank assembly and the first connector is mounted to the crank assembly.

[c18] An apparatus according to claim 17, wherein the moving means further comprises a screw coupled to the crank assembly, the screw being operable to vertically raise and lower the upper housing member between the first and second positions thereof when the crank assembly is rotated.

[c19] An apparatus according to claim 14, wherein each of the first and second walls of the feed member have a radius of curvature transverse to the internal passage, the radius of curvature of the first wall has a center that is offset from a center of the radius of curvature of the second wall so that the internal passage has a cross-sectional shape defined by two offset overlapping diameters, the feed member has a lower portion adjacent the opening, the lower portion has a lower extremity that defines the opening of the internal passage, the first wall within the lower portion has a flared region with a radius of curvature transverse to the internal passage that increases in a direction toward the opening so that a portion of the opening is defined by the flared region and has a larger radius of curvature than the second wall within the lower portion of the feed member, and the force applying means forces the food product into contact with the flared region of the lower portion as the cutting means is making a substantially horizontal cut through the food product.

[c20] An apparatus according to claim 14, wherein the force applying means comprises at least two fluid jets flowing across the internal passage from the second wall toward the first wall so as to impact the food product as the food product travels downward through the internal pas-

sage.